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IDENTIFIERS GATB; *General Aptitude Test Battery

ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

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ED 065573

TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

SALESMAN, REAL ESTATE (real estate) 1-63.10

B-526 S-249

T1 001 760

U. S. Employment Service in
Cooperation with
Colorado State Employment Service

November 1962

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

SALESMAN, REAL ESTATE (real estate) 1-63.10

B-526

Summary

The General Aptitude Test Battery, B-1002A, was administered on July 26, 1960 to a final sample of 52 workers employed as Salesman, Real Estate 1-63.10 by various firms in Colorado Springs, Colorado. The criterion consisted of supervisory ratings made on a descriptive rating scale. On the basis of mean scores, standard deviations, correlations with the criterion, job analysis, and their combined selective efficiency, the aptitudes G - Intelligence, V - Verbal, N - Numerical and Q - Clerical Perception were selected for inclusion in the final test norms.

GATB Norms for Salesman, Real Estate 1-63.10, B-526

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
G	CB-1-H CB-1-I CB-1-J	115	G	Part 3 Part 4 Part 6	110
V	CB-1-J	100	V	Part 4	100
N	CB-1-D CB-1-I	100	N	Part 2 Part 6	95
Q	CB-1-B	90	Q	Part 1	90

Effectiveness of Norms

The data in Table IV indicate that 12 of the 19 poor workers, or 63 percent of them, did not achieve the minimum scores established as cutting scores on the recommended test norms. This shows that 63 percent of the poor workers would not have been hired if the recommended test norms had been used in the selection process. Moreover, 24 of the 31 workers who made qualifying test scores, or 77 percent, were good workers.

I. Purpose

This study was conducted to determine the best combination of aptitudes and minimum scores to be used as norms on the General Aptitude Test Battery for the occupation of Salesman, Real Estate 1-63.10.

II. Sample

The subjects for this study were Real Estate Salesmen employed by various firms in Colorado Springs, Colorado, who were asked by the Colorado Springs Board of Real Estate Brokers to participate.

Testing with the GATB, B-1002A, was done on July 26, 1960. Initially, 65 persons were tested. The final sample consisted of 52 subjects. Twelve of the subjects who were eliminated did not have the required 24 months of experience as stipulated in the study plan. One was eliminated at the request of the Secretary of the Board of Real Estate Brokers.

TABLE I

Means (M), Standard Deviations (σ), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education, and Experience

N = 52	M	σ	Range	r
Age (years)	44.7	9.6	23-62	-.331*
Education (years)	13.0	1.6	8-16	.117
Experience (months)	71.4	44.7	24-204	.059

*Significant at the .05 level

The data in Table I indicate that this sample is suitable for test development purposes with respect to age, education and experience.

III. Job Description

Job Title: Salesman, Real Estate (real estate) 1-63.10

Job Summary: Lists and sells real estate. Handles transactions for persons desiring to buy or who may be prospective buyers as well as persons owning property who wish to list their property for sale.

Work Performed: Acts as an agent for a Real Estate Broker, negotiating a real estate transaction, such as sale of a property, rental of a property, or other phases of the real estate business, the more complex of which could be subdividing land, large buildings, selling large complex units, or ranches, or multiple trading of properties.

Acquires, through a training period with his broker, a complete and ever-changing knowledge of market values, financing, state, city and federal laws, taxation, advertising, and similar items. Keeps informed of all changes in laws, legislation, interest rates, qualification requirements, and rezoning requests in order to be able to inform both buyers and sellers of present conditions.

Acquires, properties to sell, rent, lease, or subdivide, and gets clients through referrals, door to door canvassing, telephone canvassing, advertising media, friends, relatives, legal notices, and former buyers and sellers. Consults companies' listings to ascertain if they have any property listed meeting the client's requirements. Refers to multiple listings for the immediate area if there are no listings in companies' files to fulfill the client's request. Makes estimates of market value of property, applying knowledge of replacement cost, age and condition, etc. to be able to judge a realistic price. Arranges for client to inspect various properties in particular area in which client has expressed interest in order for client to gain knowledge of what is available and to attempt to consummate a sale. Points out advantages and disadvantages of each particular property, keeping in mind the client's needs and preferences. Writes contract for transaction, applying his knowledge of real estate laws and legislation, finance regulations, etc. Shows amounts of money involved by both parties, where they apply, the reasons for various requirements, and presents papers to both parties for their inspection and approval.

In most States it is required that a Real Estate Salesman pass a State Real Estate Licensing Examination and become licensed.

IV. Experimental Battery

All the tests of the GATB, B-1002A, were administered to the sample group.

V. Criterion

The criterion for this study was a rating of job performance in all areas of work encountered by Real Estate Salesmen. The Bureau of Employment Security Descriptive Rating Scale (SP-21) was used to collect this information during the period December 1960 to April 1962. Two ratings were made by the employing realtor, the second rating being obtained at least two weeks after the first rating and independent of it. A correlation coefficient of .859 was obtained for consistency of the ratings. The final criterion which consisted of the average of the two sets of ratings, resulted in scores having a range of 23-43, a mean score of 35.413 and a standard deviation of 5.176.

VI. Qualitative and Quantitative Analyses

A. Qualitative Analysis:

The job analysis indicated that the following aptitudes measured by the GATB appear to be important for this occupation.

Intelligence (G) - required to learn and make proper interpretation and application of law, legislation, and qualification requirements.

Verbal Aptitude (V) - required to maintain proper communication among involved parties during transaction, and to interpret changes in laws, legislations, and qualifying requirements.

Numerical Aptitude (N) - required to figure building sizes and areas, lot sizes, percentages, taxes, interest, etc.

Clerical Perception (Q) - required to avoid perceptual errors in written contract and arithmetic computations.

Five of the aptitudes are considered "irrelevant" for performing the duties of this job: S-Spatial, P-Form Perception, K-Motor Coordination, F-Finger Dexterity, and M-Manual Dexterity.

B. Quantitative Analysis:

TABLE II

Means (M), Standard Deviations (σ), and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB; N=52

Aptitudes	M	σ	r
G-Intelligence	113.2	12.7	.298*
V-Verbal Aptitude	111.4	12.4	.108
N-Numerical Aptitude	110.9	12.6	.286*
S-Spatial Aptitude	103.4	18.8	.336*
P-Form Perception	95.8	17.3	.434**
Q-Clerical Perception	100.4	12.9	.221
K-Motor Coordination	103.2	18.2	.060
F-Finger Dexterity	94.7	16.2	.182
M-Manual Dexterity	94.9	18.5	.080

**Significant at the .01 level
*Significant at the .05 level

C. Selection of Test Norms:

TABLE III

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
Important	X	X	X			X			
Irrelevant				X	X		X	X	X
Relatively High Mean	X	X	X						
Relatively Low Sigma	X	X	X			X			
Significant Correlation with Criterion	X		X	X	X				
Aptitude to be Considered for Trial Norms	G	V	N			Q			

Trial norms consisting of various combinations of Aptitudes G, V, N, and Q with appropriate cutting scores were evaluated against the criterion by means of the Phi Coefficient technique. A comparison of the results showed that B-1002 norms consisting of G-110, V-100, N-95 and Q-90 had the best selective efficiency.

VII. Validity of Norms

The validity of the norms was determined by computing a Phi Coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing 37 percent of the sample in the low criterion group because this percent was considered to be the unsatisfactory or marginal workers. (This percent is as close as possible to one-third of the sample.)

Table IV shows the relationship between test norms consisting of Aptitudes G, V, N and Q with critical scores of 110, 100, 95 and 90, respectively, and the dichotomized criterion for Salesman, Real Estate 1-63.10. Workers in the high criterion group have been designated as "good workers" and those in the low criterion group as "poor workers."

TABLE IV

Validity of Test Norms for Salesman, Real Estate 1-63.10
(G-110, V-100, N-95, Q-90)

N = 52	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Workers	9	24	33
Poor Workers	12	7	19
Total	21	31	52

Phi Coefficient = .35

$X^2 = 6.448$

$P/2 < .01$

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

VIII. Conclusions

On the basis of the results of this study, Aptitudes G, V, N and Q with minimum scores of 110, 100, 95 and 90, respectively, have been established as B-1002 norms for Salesman, Real Estate 1-63.10. The equivalent B-1001 norms consist of G-115, V-100, N-100 and Q-90.

IX. Determination of Occupational Aptitude Pattern

Relationships between OAP's No. 3, No. 6, and No. 7, of the existing 35 OAP's (revised 10/61), and the criterion for the experimental sample were not significant. The data of this sample will be considered for future groupings of occupations in the development of new occupational aptitude patterns.